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# Insertion of IUDs by Rural Midwives in Iran

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LARGE-SCALE FAMILY PLANNING PROGRAMS are urgently needed in developing countries to help stem the tide of rapid population increase. However, trained medical personnel are scarce, particularly in rural areas where education about use of contraception and distribution of contraceptives are most needed. The developing countries, therefore, are training paramedical personnel in the various aspects of family planning, particularly for service in rural areas. Paramedical personnel are being used in Barbados (1), Pakistan (2), Thailand (3), Ceylon (4), and eastern Kentucky in the United States (5), as well as in other countries. The education, training, extent of supervision, and duties of these persons vary with the particular program.

It is now an accepted fact that health auxiliaries can be trained to perform many family planning tasks that previously were carried out only by physicians. One task now being performed by paramedical personnel is the insertion of IUDs. The issue of whether these persons can do the insertion adequately is still a matter open to debate; however, the evidence that they can is becoming increasingly favorable.

Little information is available about the relationship between retention of the IUD and the training of the inserter. Two reports of early studies presented contradictory findings. One of these reports, which presented preliminary findings from a study in a Korean rural area, revealed that expulsion rates were slightly higher and removal rates were slightly lower when the insertions were done by paramedical personnel (6). On the other hand, a study in Barbados (1) gave suggestive evidence that the mean retention time

for IUDs inserted by nurse-midwives was slightly longer than for those inserted by physicians, although the results were inconclusive.

In Iran, a program to train village midwives to distribute contraceptive pills and to insert the intrauterine device was begun in 1965. The village midwife is a traditional fixture in rural Iran. Many midwives have served in the villages for 15 to 20 years. Most have little formal education by Western standards—the average is the equivalent of 6 years of formal schooling.

Each village midwife spends 2 months in an urban training site, where she receives instruction in birth control techniques. The first month is spent on oral contraceptives, which are far more popular in Iran than any other contraceptive technique. The other month is spent on learning to perform a pre-insertion pelvic examination, insertion of the intrauterine device, and removal of the device. During the training period, each midwife inserts a minimum of 30 IUDs (Lippes loops, types C and D). When her training is completed, the

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midwife is authorized to conduct a pelvic examination and to insert Lippes loops without direct supervision by a physician.

After training, each midwife is assigned to a Health Corps Station, where she works in the family planning-maternal and child health clinic. Her responsibilities include some prenatal care, delivering babies, and distribution of contraceptives (primarily birth control pills and IUDs). Before performing a pelvic examination and inserting an IUD, the midwife must obtain permission from the Health Corps Station physician. However, all pelvic examinations and IUD insertions are performed by the midwife without supervision by a physician. The physician is available in case of serious complication, such as hemorrhage or uterine perforation. Thus, the experience of the Iranian midwife can provide information concerning the ability of paramedical personnel to perform IUD insertions successfully, without creating hazard to the user, under conditions of almost total independence.

IUD insertions are also performed in urban clinics operated by the Family Planning Department of the Ministry of Health. In these clinics, IUDs are inserted by physicians or by nurse-midwives under the supervision of a physician, after a routine pelvic examination.

The study described here was conducted to compare (a) the effectiveness of the village midwife to that of the staff of an urban clinic, as indicated by overall termination rates and by reason for termination, and (b) characteristics of the urban and village women who discontinued use of the IUD and those who did not.

## Study Methods

In Shiraz, the capital city of Fars Province, Iran, there are 16 family planning-maternal and child health clinics operated by the Family Planning Department of the Ministry of Health. The clinics are free and cater primarily to poverty-level persons.

The majority of the women have had at least four return visits to a clinic. If a woman visits another clinic for removal of an IUD, her records are obtained from the clinic in which the IUD was inserted and the reason for removal is carefully recorded. In addition, any reported cases of spontaneous expulsion are recorded on the permanent record. The clientele of the clinics are not mobile—few women emigrate from the city; however, women from rural areas often use urban clinics. The clinics are the major source for removal of the IUD for the great majority of the women. Nevertheless, it is possible that a few women who have IUDs inserted at a clinic do have them removed elsewhere.

For this study, 1 of the 16 clinics in the city was chosen, and the records of all women who had an IUD inserted at the clinic during the previous 5 years were abstracted. The following information was obtained from each record: (a) age, education level, parity, and desire for additional children—all of which had been obtained from each woman at the time of insertion and (b) whether use had been discontinued and, if so, the reason for removal and the time of removal. Identical records were kept for every woman who had an IUD inserted by a village midwife during the previous 5 years



in each of the villages in the Kavar and Marvdasht areas of Fars Province. The Lippes loop, types C and D, was used by both the midwives and the urban clinic.

Any termination of IUD use without reinsertion was categorized as one of the following:

- Expulsion without replacement, which included any expulsion into or from the vagina and any partial expulsion from the cervix which required removal.
- Removal for medical reasons, which included all removals because of physical complaints, whether considered relevant or not by the person who performed the removal. This category also included pregnancies that were judged to have occurred before insertion.
- Desire for pregnancy—removal of IUD because of an expressed wish to have additional children.
- Opposition of family to the use of contraception in general or to the use of the IUD in particular.

The length of time of IUD use in the villages and the cities was distributed quite similarly. The following tabulation includes both women who discontinued use and those who were still continuing use at the time of the study. Since the distribution of length of usage was quite similar in the two groups, it was believed that a comparison of crude termination rates would provide an accurate comparison of the two groups.

Number of months of use	Village		Urban	
	Number	Percent	Number	Percent
6 or less	47	17	316	22
7–12	29	11	220	15
13–23	84	31	331	23
24 or more	115	41	569	40
Total	275	100	1,436	100

In previous studies, the two variables most consistently shown to be related to IUD retention were age and parity (6). A comparison was made of the two study groups with respect to these variables. Little difference was seen in the age distribution of the two groups, except for the slight excess of village women 35 and over and a slight deficit in the other age groups, as follows:

Age	Village		Urban	
	Number	Percent	Number	Percent
Under 25	126	45	686	48
25–34	99	36	542	38
35 or over	50	19	208	14
Total	275	100	1,436	100

For women who discontinued use, the mean parity was 3.9 for those attending the urban clinic and 5.06 for those in the villages. For women who continued use, the mean parity was 5.26 for those in the villages and 4.1 for those attending the urban clinic.

All the women in this study had their first IUD insertion at the clinic or from the midwife. However, if an expulsion occurred and the IUD was reinserted, that woman was not included in the expulsion category. Thus, all the rates calculated include the women who had reinsertions. Approximately 8 percent of the

women in both locations had the IUD reinserted at least once.

## Results

The overall termination rate for the women attending the urban clinic was 25.8 per 100 (360 of 1,436 users). For the village, 61 of 275 women terminated, giving a rate of 22.2 per 100 users. The difference between the urban clinic and the village was tested by means of the chi-square test. The difference was not significant at the .05 level. It appears that the rural midwife, with a minimum of training and no direct supervision, can achieve a retention rate comparable to that which can be obtained in a physician-supervised setting.

The categories for which the village women had higher removal rates were spontaneous expulsion, desire for pregnancy, and opposition of family. The rate of medical removal was 17.9 per 100 in the urban clinic and 12.36 in the village. The breakdowns by category of termination were as follows:

Reason for removal of IUD	Urban		Village	
	Percent	Rate per 100	Percent	Rate per 100
Accidental pregnancy	5	1.18	3	0.73
Spontaneous expulsion	10	2.44	16	3.64
Medical removal <sup>1</sup>	69	17.90	56	12.36
Desire for pregnancy	6	1.53	12	2.55
Opposition of family	7	1.88	12	2.55
Unknown	3	0.84	1	0.36
Total	100	25.0	100	22.2

<sup>1</sup> Includes bleeding, infection, pain, wound, cervicitis, and other diseases.

The first three categories, accidental pregnancy, spontaneous expulsion, and medical removal, accounted for 84 percent of the removals for urban clinic insertions and 75 percent of the village midwife insertions. To the extent that the percentages in these categories measure inserter effectiveness, the performance of the midwife compares favorably to that of the urban clinic.

To determine if education level was related to retention, the education level of those who discontinued use was compared to the level of those who continued (table 1). Women who visited the urban clinic had a higher level of education than those who visited the midwife. However, the great majority in both locations had no more than a fifth-grade education. There was no difference in level of education in either location between those who discontinued use and those who did not.

At the time the IUD was inserted, each woman was asked whether or not she had a desire for additional children (table 2). Women who discontinued use were somewhat more likely to have expressed a desire for additional children than women who continued, although the difference was surprisingly small (12 percent compared to 9 percent). Overall, only 10 percent of the women expressed a desire for additional children, an

**Table 1. Distribution of education levels for women who discontinued and those who continued use of the IUD, according to location of IUD insertion**

Education level	Urban				Village			
	Discontinued		Continued		Discontinued		Continued	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Illiterate .....	164	44	444	42	46	75	154	73
Some literacy <sup>1</sup> .....	33	9	103	10	2	3	9	4
Elementary school <sup>2</sup> .....	115	31	330	31	12	20	39	18
High school <sup>3</sup> .....	53	14	164	15	0	—	5	2
Post high school .....	2	1	13	1	0	—	0	1
Unknown .....	3	1	12	1	1	2	7	3
Total .....	370	100	1066	100	61	100	214	100

<sup>1</sup>Rudimentary reading and writing skills without formal education. <sup>2</sup>Refers to those who ever attended elementary school. <sup>3</sup>Sixth grade or higher.

**Table 2 Responses to questions at the time of IUD insertion concerning desire for additional children by women who discontinued and those who continued use of the IUD**

Response	Urban		Village		Both locations	
	Number	Percent	Number	Percent	Number	Percent
<b>Discontinued use of IUD</b>						
Desire .....	41	11	12	20	53	12
Do not desire .....	277	75	35	57	312	73
Do not know or no answer .....	51	14	14	23	65	15
<b>Continued use of IUD</b>						
Desire .....	75	7	36	17	111	9
Do not desire .....	847	94	128	60	975	76
Do not know or no answer .....	144	15	50	23	194	15
<b>All IUD users</b>						
Desire .....	116	8	48	17	164	10
Do not desire .....	1124	78	163	59	1287	75
Do not know or no answer .....	195	14	64	23	259	15

observation which indicates that the IUD was seldom being used for spacing pregnancies.

## Discussion

The results of this study indicate that the village midwife, when given a short period of concentrated training, is capable of performing a pelvic examination and inserting the IUD in routine cases without supervision by a physician. Expulsion rates were slightly higher for IUDs inserted by the midwives than for those inserted by urban clinic staffs. The rates of medical removal and accidental pregnancy were lower for women in the villages than for those who attended the urban clinics.

The two populations compared are fundamentally different in the sense that one is rural and the other is primarily urban. Thus, we necessarily compared not only the midwife and the urban clinic, but also the rural population and the urban population. The study populations were similar with respect to age. However, the mean parity differed enough between the two groups to possibly exert some effect on the termination rate.

Nevertheless, the results demonstrated that the midwife can perform pelvic examinations and insert IUDs independently in a remote area without creating undue hazard for the women she serves.

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